1 **Amendments to the Claims:**

2 This listing of claims will replace all prior versions, and listings, of claims in the application:

3 **Listing of Claims:**

4 We Claim:

5 1-23 (Canceled)

6

7 24. (Previously presented)   An illumination system comprising: an array of one or more

8 light-emitting sources located in a source plane; a first optical sheet, separated from the

9 source array by a first propagation distance; a first illumination plane separated from said first

10 optical sheet by a second propagation distance; a second optical sheet located at said first

11 illumination plane; and a second illumination plane separated from said first illumination

12 plane, so as to provide substantially uniform intensity output profile, within the illuminated

13 area, versus position across said first illumination plane and to provide substantially uniform

14 intensity output profile versus position across said second illumination plane as well as

15 versus angle within the illuminated area of said second illumination plane, wherein the said

16 optical sheets are light homogenizing optical sheets, each comprising a substantially constant

17 thickness sheet made of transparent material with front and back surfaces, each said front and

18 back surface including a microlens array formed thereon, said microlens array each including

19 a plurality of non-hemispherical microlenses each aligned and registered with a non-

20 hemispherical microlens on an opposite said front and back surfaces, said optical sheet

21 having a sufficient thickness so that said microlenses on opposite said front and back surfaces

22 are separated by a distance substantially equal to the focal length of said microlenses.

23

25. (Previously presented)   The illumination system as recited in Claim 24, wherein at least

one optical sheet is a tailored optical sheet, wherein the aligned and registered microlens

arrays on said front and back surfaces have non-equal pitch, such that exit cones angles are

dependent on position across the optical sheet and are allowed to overlap substantially at an

illumination plane.

26. (Previously presented)   The illumination system as recited in Claim 24, wherein at least

one optical sheet is a tailored optical sheet, wherein the registered microlens arrays on said

front and back surfaces have equal pitch and are transversely aligned, such that exit cones

angles exhibit a constant, yet non-normal, exiting angle versus position across the optical

sheet.

27. (Previously presented)   The illumination system as recited in Claim 24, further including:

an optical system disposed between said source plane and said first optical sheet so as to

collimate said sources of the source array; an optical system disposed between said first

optical sheet and said second optical sheet so as to condense a substantially top-hat intensity

profile versus position across the plane of said second optical sheet; and an optical system

disposed between said second optical sheet and said second illumination plane so as to

provide a substantially top-hat intensity profile versus position across said second

illumination plane, as well as versus angle α_3 within the illuminated area.

28. (Previously presented)   The illumination system as recited in Claim 27 wherein the tiling

patterns of the first light homogenizing optical sheet and the second light homogenizing

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optical sheet are not the same, such that a uniform top-hat intensity profile exhibiting x/y

plane shape due to the tiling pattern of the light homogenizing sheet in plane x_2 is formed at

plane x_3, while the output exit cone shape emanating from plane x_3 exhibits shape due to the

tiling pattern of the light homogenizing sheet in plane x_1.

29. (Canceled)

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